

5. MAINTENANCE

BASIC REQUIREMENT

Grantees and subrecipients must keep Federally funded equipment and facilities in good operating order and maintain ADA accessibility features.

AREAS TO BE EXAMINED

1. *Vehicle Maintenance*
2. *Facility and Equipment Maintenance*
3. *Warranty Program*
4. *Oversight*

REFERENCES

1. [49 USC Chapter 53](#), Federal Transit Laws
2. [49 CFR Part 18](#), "Uniform Administrative Requirements for Grants and

Cooperative Agreements to State and Local Governments"

3. [49 CFR 37](#), "Transportation Services for Individuals With Disabilities (ADA)"
4. [FTA Circular 5010.1D](#), "Grant Management Requirements"
5. [FTA Circular 9030.1D](#), "Urbanized Area Formula Program: Grant Application Instructions"
6. [FTA Master Agreement](#)

USEFUL WEB LINKS

[Transit State of Good Repair--Beginning the Dialogue](#)

QUESTIONS FOR THE REVIEW

Part A: Vehicle Maintenance

1. *Does the grantee have a current written maintenance plan for FTA funded rolling stock? Does the plan include goals and objectives? Are the plan and preventive maintenance checklists consistent with the current operating fleet? Are the plan and checklists consistent with manufacturers' minimum maintenance requirements for vehicles under warranty? How does the grantee track the manufacturer's recommendations and updates on requirements?*

EXPLANATION

An effective vehicle maintenance program incorporates actions to maintain each vehicle type and model on a specific cycle. These actions should be designed to ensure proper care and maximize vehicle longevity. The vehicle maintenance plan should include the goals and objectives of the maintenance program, such as extending vehicle life, reducing the frequency of road calls, and tracking maintenance costs compared to total operating costs. The maintenance program should define how such goals and objectives are achieved. The maintenance plan should be updated with the purchase of new rolling stock to account for new technology and/or new manufacturer's recommended maintenance intervals and programs.

For vehicles under warranty, the grantee typically must perform a series of preventive maintenance actions if the warranty is to remain valid. If the grantee either does not perform these required maintenance routines, or performs them at greater intervals than the manufacturer's maximum intervals, the grantee runs the risk of invalidating vehicle warranty provisions. Some operators have relied on oil analysis to extend the interval between oil changes beyond the engine manufacturer's recommended interval. This is acceptable provided the grantee has a letter from the manufacturer of the vehicles' engines stating that this practice will not void the engine warranty.

FTA requires that rail operators purchasing vehicles with FTA funds have a fleet management plan that has been reviewed by FTA. FTA has extended this requirement to "new start" bus operations. These plans make brief mention of maintenance procedures. Normally, rail operators rely on more extensive written maintenance policies and procedures than those included in the fleet management plan.

REFERENCE

49 CFR 18.32(d)(4)

FTA C 5010.1D, Ch. II, Section 3.a and Ch. IV, Sections 3.k and m

FTA C 9030.1D, Ch. IV, Section 8.c

SOURCES OF INFORMATION

The reviewer will examine the grantee's vehicle maintenance plan(s) and/or program(s), the maintenance checklists, and the recommended maintenance procedures and updates of the manufacturer.

The reviewer will compare the interval for the change of engine oil and filters in the grantee's maintenance plan and checklists with the maximum interval specified in the engine manufacturer's maintenance manual.

When performing a review of a rail or ferry system, the reviewer will check that the maintenance plan prescribes a scheduled series of maintenance actions to be performed at predetermined intervals.

DETERMINATION

The grantee is deficient if it does not have a written vehicle maintenance plan.

The grantee is deficient if its plan omits some requirements (e.g., goals and objectives) or does not include the latest additions to the fleet.

For vehicles under warranty, the grantee is deficient if the maintenance interval for oil changes is longer than the manufacturer's maximum interval defined for "urban transit service" or approved alternative interval.

SUGGESTED CORRECTIVE ACTION

The grantee will be directed to submit to the FTA regional office a new or revised maintenance plan.

2. *What is the grantee's schedule for vehicle preventive maintenance inspections? Are they completed on time?*

EXPLANATION

Fleet deterioration takes a long time to occur and an equally long time to correct after the deterioration has taken place. Both take a toll on the grantee's resources and put FTA's investment at risk.

Actual maintenance practices should be consistent with the written plan. If the grantee performs preventive maintenance inspections as planned, the grantee's

entire maintenance program may be effective. A sound preventive maintenance program will reduce the incidence of unscheduled repairs and extend the vehicles' useful life. If preventive maintenance inspections are not scheduled or performed as planned, it is probable that other aspects of the maintenance program are lacking as well and the grantee is putting FTA's investment and its warranties at risk.

REFERENCE

49 CFR 18.32(d)(4)

FTA C 5010.1D, Ch. II, Section 3.a and Ch. IV, Sections 3.k and m

FTA C 9030.1D, Ch. IV, Section 8.c

SOURCES OF INFORMATION

The reviewer will review the maintenance plan(s) for the interval (miles or operated hours) between preventive maintenance inspections and determine what this interval is for each mode operated. In some cases, intervals also may vary by subfleet. The reviewer will examine preventive maintenance records to determine whether the grantee is performing inspections according to its maintenance plan.

The reviewer will check preventive maintenance inspection intervals by reviewing management reports used by the grantee for monitoring preventive maintenance inspections and by reviewing records for a selected sample of FTA funded vehicles.

For each vehicle chosen, the reviewer will examine the preventive maintenance history for the preceding 12 months. Inspections that are no later than 10 percent of schedule or 500 miles, whichever is greater, are considered on time. For example, a scheduled 6,000 mile inspection would be considered "on time" if it was performed any time before 6,600 miles. If the grantee uses a different definition of an "on time" inspection, the reviewer will use the grantee's definition if deemed appropriate.

Most grantees schedule preventive maintenance inspections based on relative miles (e.g., 6,000 miles since the last inspection). Others schedule based on absolute miles. Grantees may choose either method. The reviewer will focus on whether the inspections are conducted when due.

For commuter rail locomotives and cars, in lieu of selecting a sample of preventive maintenance records, the reviewer will examine Federal Railroad Administration (FRA) inspection records. The reviewer will sample maintenance records of ferry vessels.

DETERMINATION

The grantee is deficient if fewer than 80 percent of the inspections for any mode occurred on time. Grantees are not penalized for early inspections, only late ones. For commuter rail locomotives and cars, the grantee is deficient if FRA compliance letters indicate that the

grantee does not meet the FRA scheduled maintenance intervals.

SUGGESTED CORRECTIVE ACTION

The grantee will be directed to submit to the FTA regional office procedures for completing preventive maintenance inspections on time. The grantee will be directed to submit a report signed by the chief executive officer on its results monthly until the data demonstrates it has conducted at least 80 percent of its preventive maintenance on time for three consecutive months. For each bus that received a preventive maintenance inspection during the month, include with the submittal a report that lists the bus number, date of the inspection, mileage of the current inspection, mileage of the previous inspection, and the mileage interval between the two inspections. List the percentage of the inspections performed on time. Submit back-up documentation for each bus (e.g., copy of work order, printout from the maintenance management system) documenting the date and mileage of the inspection. If a repeat deficiency from the prior review, the grantee will be directed to submit the above data monthly until the data demonstrates it has conducted at least 80 percent of its preventive maintenance on time for 12 consecutive months.

3. *Does the grantee's vehicle maintenance program address maintenance procedures for wheelchair lifts and other accessibility features? Do maintenance records indicate regular and periodic maintenance checks for lifts and ramps? Do maintenance records indicate that other accessibility features (e.g., kneelers, public address systems, voice annunciation systems, etc.) are maintained in operative condition?*

EXPLANATION

The DOT ADA regulations require all vehicle accessibility features, such as wheelchair lifts, ramps, securement devices, signs, and communication equipment for persons with disabilities, be maintained and operational. The accessibility features must be repaired promptly if they are damaged or out of order. When ADA equipment is not working, the grantee must take reasonable steps to accommodate persons with disabilities who would otherwise use it. The ADA maintenance elements may be incorporated into the regular maintenance plan or addressed separately with specific checklists. At a minimum, the grantee must show that accessibility features are checked regularly for proper operation and receive periodic maintenance.

REFERENCE

49 CFR 37.161-163

SOURCES OF INFORMATION

The reviewer will review the grantee's maintenance plan and the maintenance checklists for ADA equipment. When sampling vehicle maintenance records, the reviewer will ensure that accessibility features are maintained regularly and repaired promptly if out of order. The reviewer will interview the person responsible for the grantee's maintenance activities.

DETERMINATION

The grantee is deficient in ADA requirements if it does not include maintenance of accessibility features in its maintenance plan, does not follow its program, or does not maintain accessibility equipment promptly.

SUGGESTED CORRECTIVE ACTION

The grantee will be directed to submit to the regional civil rights officer a preventive maintenance program for ADA accessibility equipment. The grantee will be directed to revise or fully implement its program and submit evidence of implementation to the regional civil rights officer.

Part B: Facility and Equipment Maintenance

4. *Does the grantee have a current written maintenance program for its FTA funded facilities and facility-related equipment? Does the program include inspections and preventive maintenance activities to ensure that assets are protected from deterioration and reach their maximum useful life? Is the program consistent with manufacturers' minimum maintenance requirements for equipment under warranty? Does the program prescribe a record-keeping system so that the maintenance history of facilities and equipment is permanently recorded? How is the program documented?*

EXPLANATION

Public transit requires a considerable investment in buildings, equipment, and machinery. As with vehicle maintenance, the proper maintenance of facilities, machinery, and equipment is key to protecting the FTA investment and prolonging the useful life of the asset. A model program for FTA funded facilities would be written and include an organization and assignment of

responsibility for facility and equipment maintenance, a series of inspections and routine maintenance actions designed to ensure proper care and maximize useful service life of facilities and equipment, and a record-keeping system that maintains adequate permanent records of maintenance and inspection activity for buildings and equipment.

The facility/equipment maintenance program should identify specific items, such as buildings, elevators, escalators, parking lots, electric distribution and control equipment, plumbing systems, overhead doors, vehicle maintenance lifts, vehicle washers and wash water recycling systems, heating and/or air conditioning units, power substations, etc. The facility/equipment maintenance program should describe a system of periodic inspections and preventive maintenance to be performed at certain defined intervals. Maintenance intervals might be measured in terms of time (daily, monthly, annually) or in terms of usage (hours of use).

In the case of rail systems, FTA's investment often involves the construction of passenger stations, rights-of-way, signals, and other related facilities and equipment. FRA regulates commuter rail systems and has detailed maintenance requirements for rolling stock, signals, and right-of-way that it enforces with a frequent inspection program. However, proper maintenance is needed by grantees for those components of the rail system not subject to FRA maintenance requirements, such as passenger stations, maintenance facilities, buildings, and equipment. Proper maintenance of all FTA funded facilities and equipment is necessary to protect the FTA investment and ensure that maximum service longevity is achieved.

REFERENCE

49 CFR 18.32(d)(4)

Master Agreement, Section 19.c

FTA C 5010.1D, Ch. II, Section 3.a and Ch. IV Sections 3.k and m

FTA C 9030.1D, Ch. IV, Section 8.c

SOURCES OF INFORMATION

The reviewer will examine the grantee's facility and equipment maintenance plan and/or program, the maintenance checklists, and preventive maintenance program.

DETERMINATION

The grantee is deficient if it does not have a facility and equipment maintenance program that addresses the current mix of FTA funded assets. The grantee is deficient if the program does not include a series of maintenance and inspection activities to be performed at appropriate intervals.

SUGGESTED CORRECTIVE ACTION

The grantee will be directed to submit to the FTA regional office a new or revised facility/equipment maintenance program.

5. *What is the grantee's schedule for facility and equipment preventive maintenance inspections? Are they completed on time?*

EXPLANATION

The grantee must follow its maintenance program for facilities and equipment. If preventive maintenance inspections are not scheduled or performed as planned, it is probable that other aspects of the facility and maintenance program are lacking as well and the grantee is putting FTA's investment and its warranties at risk.

REFERENCE

[49 CFR 18.32\(d\)\(4\)](#)

[Master Agreement](#), Section 19.c

[FTA C 5010.1D](#), Ch. II, Section 3.a and Ch. IV Sections 3.k and m

[FTA C 9030.1D](#), Ch. IV, Section 8.c

SOURCES OF INFORMATION

The reviewer will examine a sample of facility and equipment maintenance records or management reports used by the grantee for monitoring preventive maintenance inspections. For each item in the sample, the reviewer will examine the facility/equipment maintenance history for the preceding 12 months, note the date when each inspection was accomplished and record the interval from the previous inspection. The reviewer will compare the interval with the grantee's definition of an "on-time" inspection to determine if the inspection was in accordance with the grantee's facility and equipment maintenance plan.

DETERMINATION

The grantee is deficient if fewer than 80 percent of the inspections occurred on time. Grantees are not penalized for early inspections, only late ones.

SUGGESTED CORRECTIVE ACTION

The grantee will be directed to submit to the FTA regional office procedures for completing preventive maintenance inspections on time. The grantee will be directed to submit a report signed by the chief executive officer on its results monthly until the data demonstrates it has conducted at least 80 percent of its preventive maintenance on time for three consecutive months. For the items reported on, submit a report listing the items, the dates the inspections are due, and the dates of the actual inspections. List the percentage of the inspections performed on time. (e.g., copy of work order, printout from the maintenance management system). If a repeat deficiency from the prior review, the grantee will be directed to submit the above information monthly until the data demonstrates it has conducted at least 80 percent of its preventive maintenance on time for 12 consecutive months.

6. *Does the grantee's facility maintenance program address maintenance procedures for accessibility features? Do maintenance records indicate that accessibility features are maintained in operative condition?*

EXPLANATION

The DOT ADA regulations require all facility accessibility features, such as escalators and elevators in the grantee's facilities, be maintained and operational. The accessibility features must be promptly repaired if they are damaged or out of order. When the equipment is not working, the grantee must take reasonable steps to accommodate persons with disabilities who would otherwise use it. The ADA maintenance elements may be incorporated into the regular maintenance program or addressed separately with specific checklists. At a minimum, the grantee must show that accessibility features are checked regularly for proper operation and receive periodic maintenance.

REFERENCE

[49 CFR 37.161](#)

SOURCES OF INFORMATION

The grantee's maintenance program and the maintenance checklists will be reviewed. When sampling facility maintenance records, the reviewer will ensure that accessibility features are maintained regularly and repaired promptly if out of order. The reviewer will interview the person responsible for facility maintenance activities.

DETERMINATION

The grantee is deficient in ADA requirements if it does not have a program to maintain accessibility features, does not follow the system, or does not maintain the accessibility equipment promptly.

SUGGESTED CORRECTIVE ACTION

The grantee will be directed to submit to the FTA regional civil rights officer a preventive maintenance program for ADA accessibility equipment. The grantee will be directed to revise or fully implement its program and submit evidence of implementation to the regional civil rights officer.

Part C: Warranty Program

7. *Is any FTA funded equipment under warranty? If yes, what is the grantee's system for recovering warranty claims? Are claims pursued satisfactorily?*

EXPLANATION

If the grantee has equipment under warranty, FTA requires that the grantee have a system for identifying warranty claims, recording claims, and enforcing claims against the manufacturers. An aggressive warranty recovery program ensures that the cost of defects is borne properly by the equipment manufacturer and not the grantee and FTA. There should be clear procedures to identify warranty repairs, record the warranty claim, submit the claim to the manufacturer, and follow up on unpaid claims.

REFERENCE

[FTA C 5010.1D](#), Ch. II, Section 3.a and Ch. IV, Sections 3.k

[FTA C 9030.1D](#), Ch. IV, Section 8.c

SOURCES OF INFORMATION

The reviewer will identify the vehicles and equipment under warranty. The reviewer will ask the grantee to explain how the preventive maintenance program meets or exceeds the manufacturer's recommended program.

The reviewer will ask the grantee for a copy of its warranty recovery program, or, if the program is not in writing, to describe the warranty recovery system. Records and files for the program will be reviewed to learn how timely and aggressive the grantee has been in pursuing and collecting warranty claims. The reviewer will compare the records of claims submitted with claims settled.

DETERMINATION

The grantee is deficient if it does not have a warranty recovery system, does not have records documenting that warranty claims are pursued, or is not pursuing warranty claims diligently.

SUGGESTED CORRECTIVE ACTION

The grantee will be directed to submit to the FTA regional office a written system for managing warranty claims with a plan for implementation. The grantee will be directed to submit to the FTA regional office a plan for documenting resolution of warranty claims. The grantee will be directed to report on the pursuit of warranty claims for each month for three months to demonstrate it is pursuing claims.

Part D: Oversight

8. *Does the grantee have FTA funded vehicles or facilities that are maintained by subrecipients, leased to service providers or maintained under contract by other than the grantee's employees? If yes, does the grantee have written maintenance standards?*

Do the standards address ADA requirements for maintenance of accessibility features? Does the grantee have or require written maintenance plans? How does the grantee ensure that subrecipients, contractors and lessees follow the required maintenance standards/plans?

EXPLANATION

FTA funded vehicles and facilities must be maintained regardless of who operates and maintains them. Subrecipients, third-party contractors, and lessees "stand in the shoes" of the grantee as far as FTA maintenance requirements are concerned. The grantee must require subrecipients, contractors, and lessees to follow acceptable maintenance standards. The subrecipient agreement, contract or lease should address maintenance standards or maintenance performance indicators. The grantee may have its own maintenance plan or require its subrecipients, contractors, and lessees to develop their own maintenance plans.

The grantee must have an effective mechanism to monitor subrecipients', contractors', and lessees' maintenance activities. An acceptable program would consist of periodic written reports on maintenance activities submitted to the grantee, supplemented by periodic inspections of the FTA funded vehicles and facilities.

REFERENCE

[49 CFR 18.37 and 18.40](#)

[FTA C 5010.1D](#), Ch. II, Section 3.a and Ch. IV, Sections 3.j(1), 3.k and 3.m

[FTA C 9030.1D](#), Ch. IV, Section 8.c

[FTA Master Agreement](#), Section 19.c

SOURCES OF INFORMATION

The reviewer will examine sample subrecipient agreements, contracts, leases for maintenance requirements and a sample of maintenance plans. Often the plan is found either in the request for proposals or in the contractor's proposal. The reviewer will determine who is responsible for monitoring the maintenance activities of subrecipients, contractors, and lessees and determine whether the grantee has assigned an employee with a maintenance background to assess the contractor's performance and judge how the contractor deals with maintenance issues. The reviewer will visit a subrecipient, contractor, and/or lessee to visually inspect vehicles and facilities and to sample maintenance records.

DETERMINATION

The grantee is deficient if it does not have or require a maintenance plan or does not oversee the contractor's

maintenance activities through periodic reports and inspections of facilities and vehicles.

SUGGESTED CORRECTIVE ACTION

The grantee will be directed to submit a written maintenance plan to the FTA regional office and an amended subrecipient agreement, contract, or lease incorporating the plan.

The grantee will be directed to submit to the FTA regional office an amended subrecipient agreement, contract, or lease that incorporates maintenance

standards compatible with FTA requirements or performance measures for timely maintenance.

The grantee will be directed to submit to the FTA regional office a copy of the letter signed by the CEO to the subrecipient, contractor, or lessee citing the maintenance requirements, stating that the entity is not meeting the maintenance requirements, and directing the entity to implement steps to meet the requirements.

The grantee will be directed to submit to the FTA regional office an oversight program.